

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

OFFICIAL ORGAN OF THE ROYAL AERO CLUB OF THE UNITED KINGDOM

No. 925. (No. 37, Vol. XVIII.)

SEPTEMBER 16, 1926

Weekly, Price 6d.
Post free, 7d.

Flight

The Aircraft Engineer and Airships

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

Telegrams: Truditur, Westcent, London. Telephone: Gerrard 1828.
Annual Subscription Rates, Post Free.

United Kingdom .. 30s. 4d. Abroad .. 33s. 0d.*

These rates are subject to any alteration found necessary under abnormal conditions and to increases in postage rates.

* Foreign subscriptions must be remitted in British currency.

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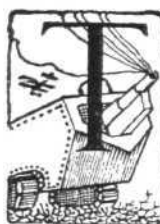
DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

1926

- Sept. 10-18 Two-Seater Light Aeroplane Competition, Lympne.
- Sept. 18 Grosvenor Challenge Cup, at Lympne.
- Oct. 2 Second Yorkshire Aeroplane Club Air Pageant, Sherburn.
- Oct. 2 28 Squadron (R.A.F.) Old Boys' Association Seventh Re-union Supper, "White Horse," Holborn, London, W.C.2.
- Oct. Schneider Cup Race at Norfolk, Virginia, U.S.A.
- Oct. Stefanik Prize Race at Prague.
- Oct. 24-28 Coppa del Mare, Italy.
- Nov. 1-15 Coppa d'Italia, Italy
- Dec. 3-19 Paris Aero Show

EDITORIAL COMMENT.



THE main subject of conversation in aviation circles at the moment is, of course, the light 'plane competition at Lympne, in which, at the time of writing, seven machines are still taking part, although it appears not unlikely that by the time this week's issue of FLIGHT reaches our readers that number will have been further reduced. So far, the competition has undoubtedly shown these little light 'planes

to possess quite extraordinary efficiency, as measured by the ton-miles per gallon standard. Unfortunately, as we have pointed out repeatedly in these columns, efficiency is not the only criterion that counts if we are to get light aeroplanes flying in their hundreds or thousands. The best figure attained so far is one of 7.24 ton-miles per gallon of petrol, but, even if this figure could be doubled—which it very definitely cannot with our present knowledge of aerodynamics and of petrol engines—we venture to say that it would profit us little if the machines capable of such fuel economy were to cost £700 or £800. First cost is at least as important as running cost, and a mileage of 37 or 38 miles per gallon of fuel, although excellent as a demonstration of fuel economy, would not go a very long way towards making up for a high initial cost, nor would the petrol bill for a machine doing only half that distance on a gallon form more than a very small percentage of the total running cost of a machine. First cost, of engine no less than of machine, is the main handicap of popular flying, and unless and until we can bring down that figure, no imaginable economy in consumption is going to produce a market on any large scale.

We are very glad to see that Major C. C. Turner calls attention to the importance of cost in a recent article on the Lympne competition in the *Daily Telegraph*, and thus helps to place before a wide circle of the public the true facts of the case. Undue optimism on the subject of light 'planes can do no good. Let us frankly face the facts and rather try to find a way of reducing the cost.

A Cost Basis

Obviously, the first thing to be done is to choose as a basis for the next light 'plane competition (if, as we trust, we are to have another), not fuel economy, not super-efficiency, not giant useful loads carried by miniature engines, but first cost. It will not be an easy matter to formulate a workable basis, and unless we are prepared to wait for some enterprising manufacturer to come along with a machine designed for very cheap production, entirely as a business speculation, and prepared to spend many thousands of pounds sterling in laying down a special plant, there does not seem to be any alternative but for the Government, presumably in the form of the Air Ministry, to come forward. The prizes to be offered for such a competition would have to be very substantial, and all entrants should be asked to quote a price at which they would be prepared to supply their machines, in batches of 100, for example, the Air Ministry undertaking to place an order with the winning competitor for at least one batch. We do not think that any cash prize, by itself, no matter on how generous a scale, would produce the desired result. But if entrants were assured that if they succeeded in obtaining first place, the result would certainly and definitely be an order for 100 machines, it would be well worth while to enter. In drawing up the rules, a certain maximum price could be fixed, no machine quoted at a higher price coming into consideration in the award of marks, and extra marks given, possibly on an advancing scale, for, say, every £10 less than the maximum permitted. If this maximum were chosen at £500 (we do not necessarily suggest that this particular figure *should* be used), the Air Ministry would be committed to purchase 100 aeroplanes for a maximum cost of £50,000, but by re-sale to the public there does not seem to be much doubt that most, if not all, of this amount would be recovered. At the worst, the R.A.F. would have a few of these machines on which to carry out training, or to use as messenger 'planes, or in any other way in which they could be employed. In view of the often-expressed desire on the part of the Air Ministry to do everything possible to encourage "air-mindedness," the price could not be regarded as prohibitive. In any case, it would be only what the Air Ministry was prepared to pay for a helicopter, and we are quite sure 100 machines selling at less than £500 would be of more use to the nation than one helicopter.

That there are difficulties in the way of such a scheme we are well aware. In fact, the difficulties are very great indeed, nobody realises that better than we do. But we refuse to believe they are insuperable. Not the least is the question of a suitable power plant, and it might be good policy to hold first a competition for suitable engines, still with minimum price as the main consideration, provided the weight did not exceed a certain figure for whatever maximum power output was decided upon, and with a guarantee of an order placed with the winner for a considerable (and previously stated) number of engines.

However, this scheme is dealing with the future rather than with the present, and may not materialise for some considerable time, although we firmly believe that until the problem is attacked on a cost basis but little headway is likely to be made. In the meantime it is interesting to examine what progress has been made by the holding of this year's competition. As we pointed out last week, the air-

craft industry as a whole has not supported the meeting to the extent that might have been hoped. Whether this is due to the prevalence of an opinion that the regulations for the competition were not calculated to produce the type of machine required, or whether to other reasons, is difficult to decide. The fact remains that but two new machines were produced for the 1926 competition; the A.N.E.C. "Missel-Thrush," and the Avro "Avian." The former came to grief before the commencement of the eliminating trials, through some quite trivial mishap which in no way reflects adversely upon the design, but the accident prevented the machine from showing what it can do.

The Avro "Avian" is admitted on all sides to be a most remarkable machine, with a ratio of useful load to structure weight rarely, if ever, equalled. We have before now referred to the fact that light 'planes may be capable of very long non-stop flights. Not that the private owner, for whom this competition is stated to have been designed, is likely to fly many hundreds of miles without landing, but in some degree the capacity of a machine for long-distance non-stop flights is a measure of its efficiency. In the case of the "Avian," which carries a useful load of 828 lb. in the competition, if all of this useful load were in the shape of petrol and oil, less some 200 lb. for the weight of the pilot, in flying kit and complete with safety razor and toothbrush, and allowing for the quantity of petrol and oil carried at present, a rough estimate indicates that this machine would have a range, in still air, of course, of something like 1,650 to 1,700 miles. This estimate does not take into account the gradual decrease in weight as the fuel is consumed. If an average cruising speed of 70 m.p.h. is assumed, the "Avian" would cover this distance in something like 24 hours. We think it can be said that this machine represents a very real advance. The troubles experienced at the moment with the aluminium tank are not of a nature to detract from the merits of the machine as a whole.

♦ ♦ ♦ And then there were Six

Although on the whole this year's light 'plane competition can be said to have been a success from a technical point of view, there are one or two features of it which must be remedied in future competitions. Chief among these is the question of repairs. Under this year's regulations it is left to the officials to decide whether any repair is a "minor" one or not. Obviously this gives room for personal opinion, and consequently for dispute and heart burnings. We think it would have been better to have done as the French did at the recent Orly meeting, and allowed any repair provided it was carried out within a certain time limit. Secondly, the regulations this year did not differentiate sufficiently between the eliminating trials and the actual competition, with the result that several machines which should have been in the running are compelled to stand aside. This is likely to prove most discouraging to competitors. By distinguishing clearly, in the future, between eliminating trials and the competition proper, and by allowing repairs within specified time limits, there would be less likelihood of really good machines being eliminated on account of some trivial mishap. We are quite sure that competing machines would be no worse for this, and the interest of the competition would be considerably greater.



ALL-METAL CONSTRUCTION AT WEYBRIDGE: Three views of one of the batch of Vickers-"Wibault" single-seater fighters which Vickers, Limited, are building at their Weybridge works. These machines are built almost entirely of Vickers Duralumin, even the covering being of this material. The engines fitted are Bristol "Jupiters."

BRITISH LIGHT 'PLANE DEVELOPMENT & LYMPNE MEETING

Lympne Aerodrome, Friday, September 10.—The eliminating trials for the machines taking part in the competition for light 'planes which commences on the morning of Sunday, September 12, opened this morning at 10 o'clock. Already before that time one machine had "eliminated" itself, *i.e.*, the A.N.E.C. monoplane "Missel-Thrush," which came to grief yesterday through a most trivial cause. Col. G. L. P. Henderson was taxiing it along the ground when a wheel hit a slight bump, the rubber shock absorber stretched rather more than it should have done, with the result that the axle and wheel rose to the limit of their travel. This brought the two projecting ends of the undercarriage leg below the level of the tyre, the tube ends of the leg dug into the ground, and tripped the machine up, causing it to turn over and damage itself so badly that repairs were quite out of the question. Fortunately, Col. Henderson was uninjured. The loss of the machine, however, was a severe blow to the Air Navigation and Engineering Company, with whom, and with Col. Henderson, all will sympathise very sincerely.

This morning as 10 o'clock approached it became obvious that the "Missel-Thrush" would not be the only "non-starter." It was already known that the Halton biplane could not possibly be finished in time to get to Lympne by 10 a.m., but it had been hoped that the R.A.E. Aero Club's "Sirocco" might just scrape through in time, as it was reported to have been tested in flight. However, by 10 a.m. it had not arrived, and the original number of entries, which had already been reduced by the scratching of the Cranwell biplane (No. 11), was thus further reduced by three, bringing the number of machines ready to commence their eliminating trials down to 12.

A large proportion of the competing machines had arrived by air but we think it should be placed on record that Mr. Hinkler brought over the Avro "Avian" with the full load which it is to carry in the competition. This load, by the way, is in the form of two large steel tubes filled with lead which are bolted under the fuselage. For a time there appeared to be some discussion as to whether carrying useful load outboard in this manner was permissible, the wording

of the regulations dealing with useful load being: "Additional weight may be carried anywhere in the aeroplane as useful load. . . ." There were those who claimed that the word *in* should be taken literally, and that lead-filled tubes carried under the fuselage were not *in* the aeroplane. It would seem that a better word to have used would be *on* the aeroplane, since apparently the rule was framed with the object of allowing the load to be placed *anywhere* other than the seat. The objection was ruled out, and Hinkler will be carrying a couple of tubes weighing something like 205 lbs. each around the South of England for the next week. It is to be hoped that the supports are secure.

Shortly after 10 a.m. the official business of weighing the machines, pilots, passengers, ballast, &c., was commenced, the first machine to go on the scales being the Hawker "Cygnets" (No. 6). While some machines were being weighed others were put through the dismantling, housing and re-erecting test, the first to pass this being the de Havilland "Moth." All machines passed this test without difficulty, the longest time naturally being taken by the Supermarine "Sparrow," in which the wing has to be taken right off and placed along the port side of the fuselage.

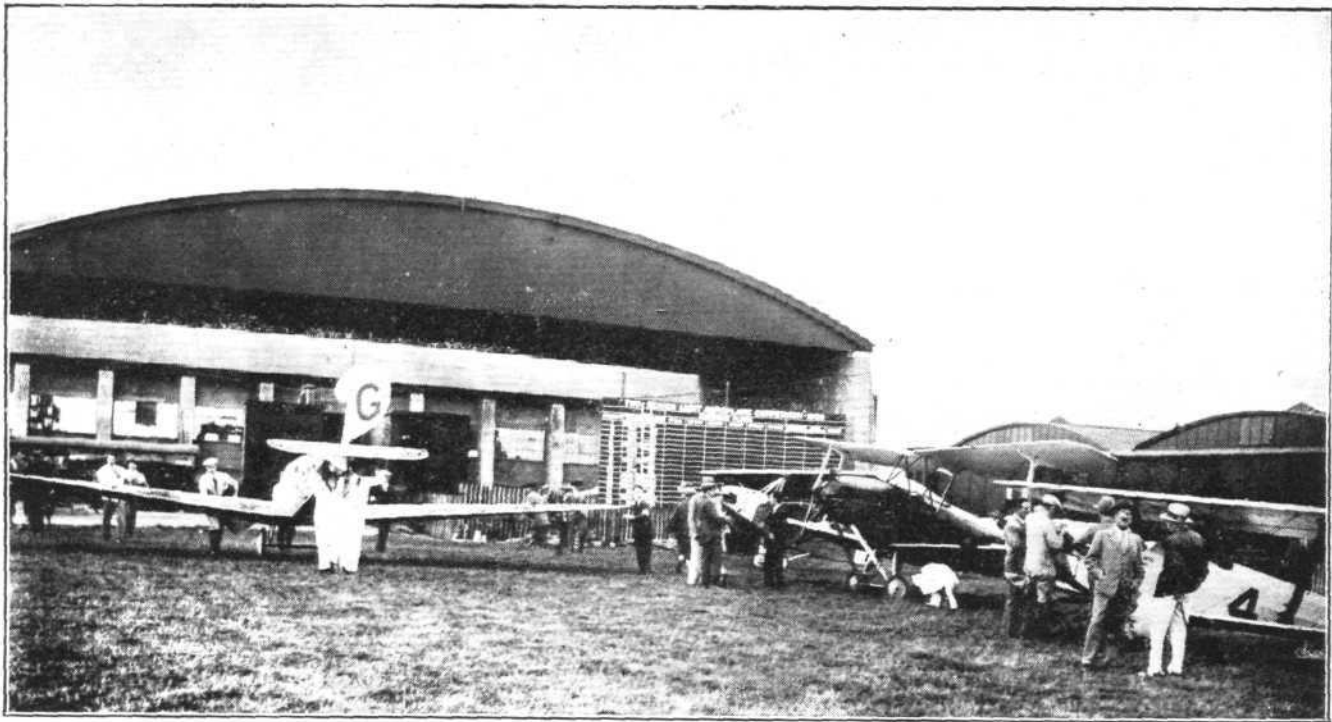
The weighing of the machines was a more difficult business, and occupied the best part of the day. Several surprises were brought out by the official scales, and in one or two instances it was only by the A.I.D. granting a certificate of airworthiness for a slightly higher total loaded weight that machines had any load to spare for sufficient petrol to carry them around some of the longer circuits. The Blackburn "Bluebird" in quite a different way, was in a rather peculiar

position on account of the C. of A. Fairly early in the day Longton brought it out and demonstrated that to clear the 25 ft. barriers with a run of 300 yards was child's play for this machine, carrying, of course, the full load up to the C. of A. figure. The machine got off like a scout, and would obviously carry another 100 lbs. load without being overloaded as far as performance went. Presumably what had happened was that the C. of A. load asked for, and obtained, was too low,



["FLIGHT" Photograph]

DISTINGUISHED VISITORS AT LYMPNE: Sir Samuel Hoare, Secretary of State for Air, and Air Vice-Marshal Sir Sefton Brancker, Director of Civil Aviation, watching the proceedings.



"FLIGHT" Photograph

AT THE SALES : Competitors waiting at the petrol "shop" to be served. On the right, in front of the Farnborough Hawker "Cygnet" may be seen Air Vice-Marshall Sir Sefton Brancker with Capt. Goodman Crouch.

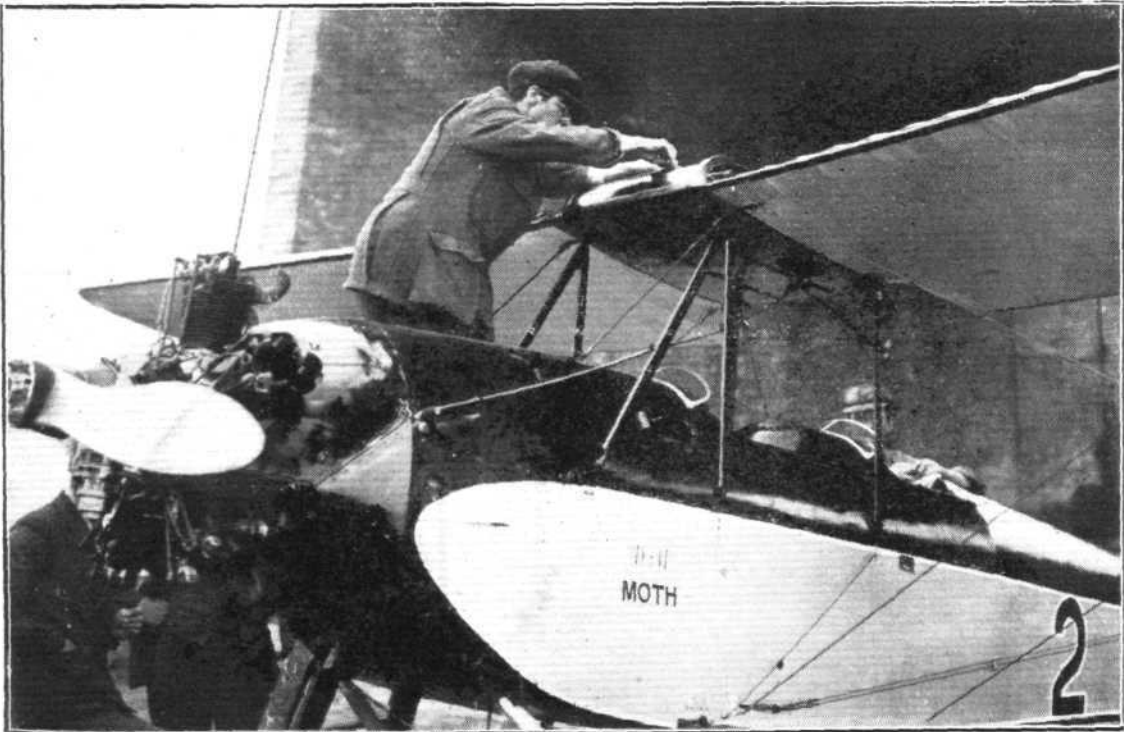
and in the end the A.I.D. granted the machine a certificate for a total loaded weight of 50 lbs. more.

The final figures for the competing machines at the close of the day were as shown in the accompanying table :

Machine No.	Type.	Weight empty.		Petrol and oil.	Useful load.	Total weight.
		lbs.	lbs.			
1	Blackburn "Bluebird"	721	107	472	1,300	
2	D.H. "Moth"	735	115	700	1,550	
3	Bristol "Brownie"	623	47	340	1,010	
4	Hawker (Farnborough) "Cygnet"	431	57	362	850	
6	Hawker "Cygnet"	421	49	430	900	
7	Supermarine "Sparrow II"	605	55	340	1,000	
9	Avro "Avian"	695	77	828	1,600	
10	Avro "Avis"	606	104	340	1,050	
12	Cranwell C.L.A. 4	529	61	340	930	
14	Parnall "Pixie III"	522	63	340	925	
15	Short "Satellite"	697	63	340	1,100	
16	Westland "Woodpigeon"	570	75	340	985	

In this connection it is of interest to examine the "structural efficiency" of the various machines by calculating the ratio of useful load carried to weight of machine empty, bearing in mind that each machine is carrying enough fuel and petrol for the longest circuit to be covered non-stop in the competition, i.e., 122 miles over the Lympne-Eastbourne-Lympne-Hastings-Lympne circuit. Thus, with a range of 122 miles this ratio is as follows for the various machines, arranged in the order of "structural efficiency" :

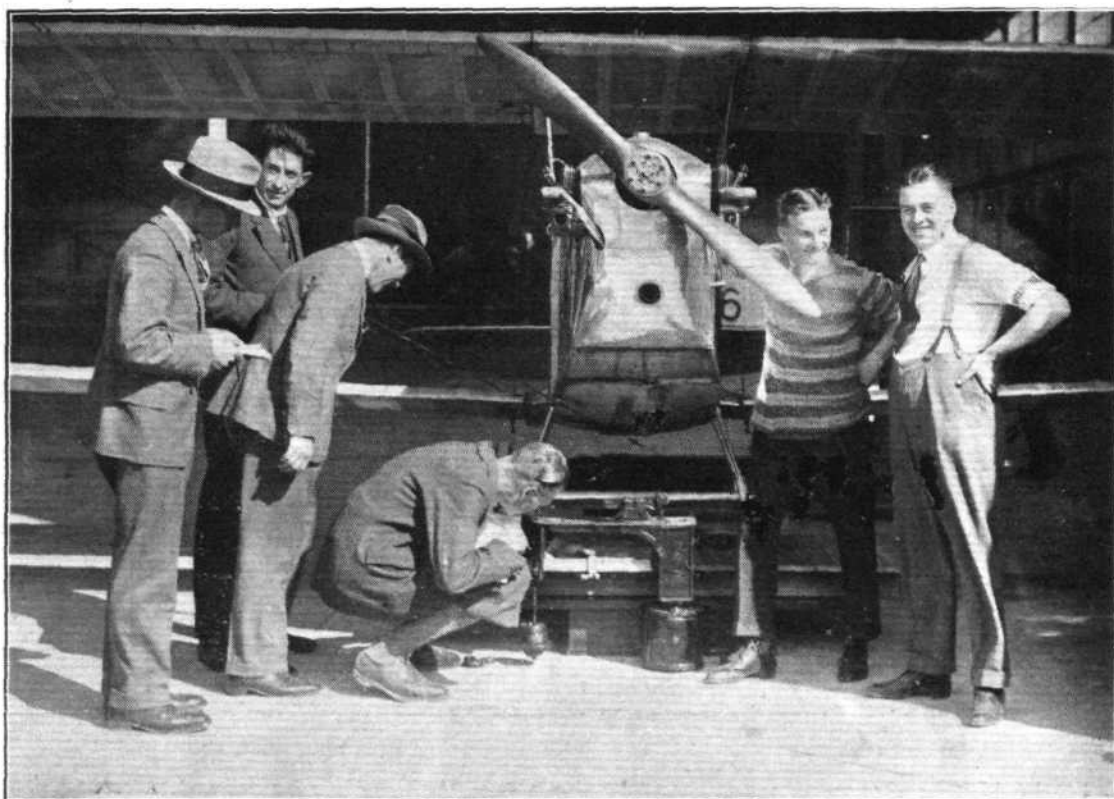
Machine.	Per cent.
Avro "Avian"	119.0
Hawker "Cygnet"	102.0
Hawker (Farnborough) "Cygnet"	84.0
Blackburn "Bluebird"	65.4
Parnall "Pixie"	65.2
Cranwell C.L.A. 4	64.3
Westland "Woodpigeon"	59.7
Supermarine "Sparrow II"	56.25
Avro "Avis"	56.2
Bristol "Brownie"	54.6
Short "Satellite"	48.8



Making Quite Sure: Professor Low sealing the tank of the de Havilland "Moth."

["FLIGHT" Photograph

["FLIGHT" Photograph
"Weighed but not
found wanting":
The Hawker
"Cygnet" on the
scales. On the
right Mr. Ford-
ham, of the Haw-
ker Company.

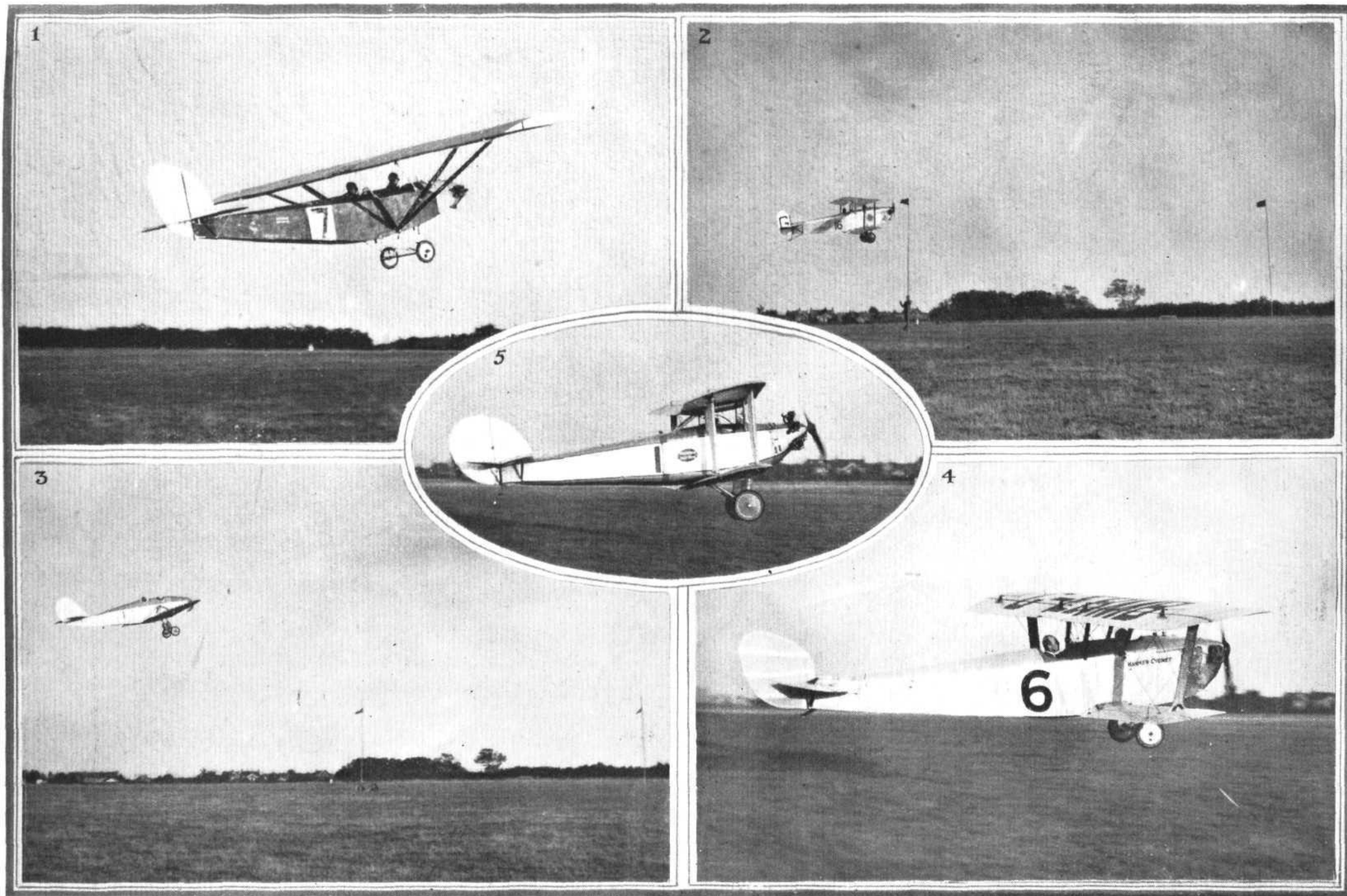


During the morning Sir Philip Sassoon, Under-Secretary of State for Air, arrived, and made a very thorough inspection of all the competing machines, stopping to discuss chances with the various competitors.

As the machines finished their weighing tests, they were brought out on the aerodrome to complete the dual control demonstration, which consisted in two flights of five minutes each within the limits of the aerodrome, during which figures

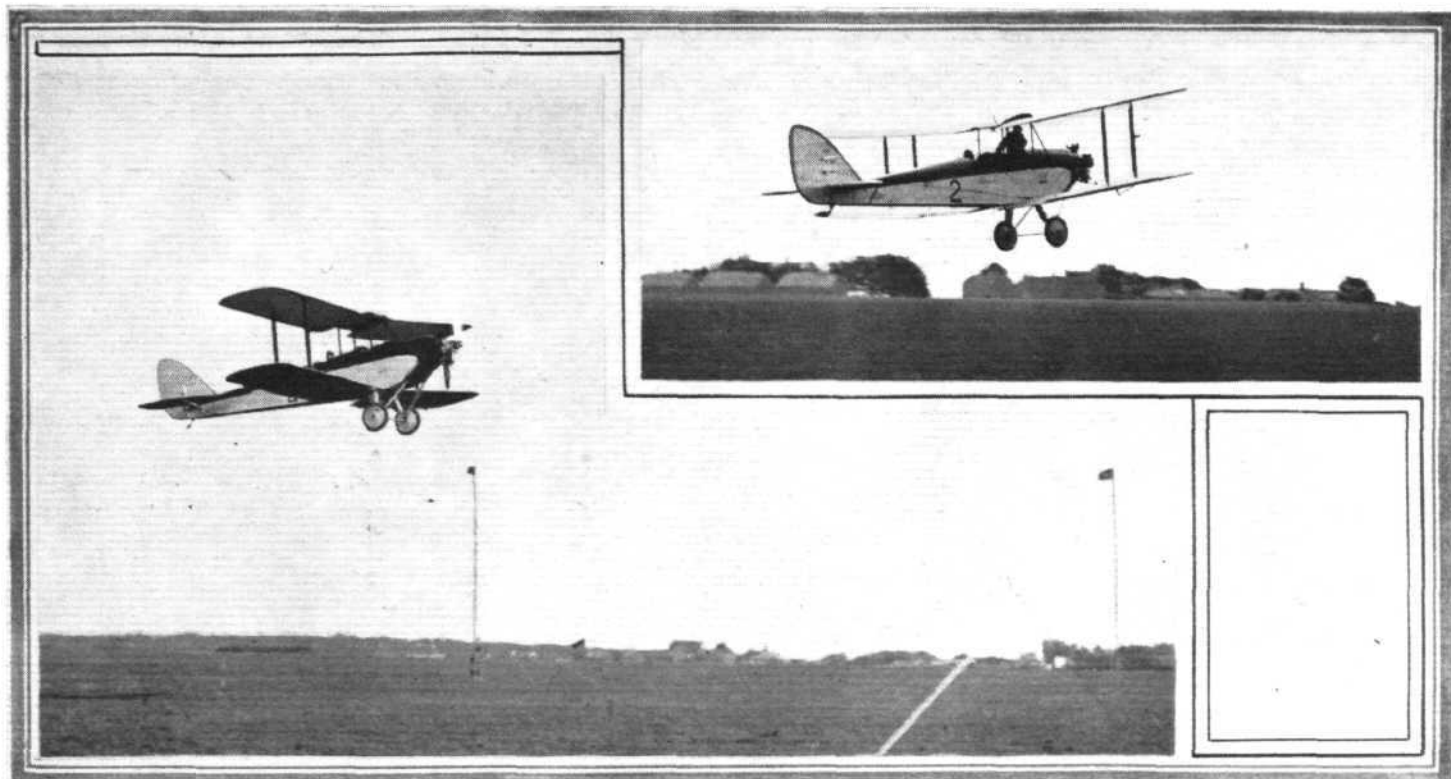


["FLIGHT" Photograph
"OVER THE STICKS": This photograph gives a good idea of the manner in which the take-off tests were observed. On the ladder is Major Buchanan, of the Air Ministry, while among those in the foreground may (or may not) be recognised Major Mayo, Lieut.-Col. Sir Francis McClean, and Mr. C. C. Walker. The machine "going over the top" is the Blackburn "Bluebird," piloted by Squadron-Leader Longton.



ELIMINATING TRIALS AT LYMPNE : 1, Captain Biard on the Supermarine "Sparrow II" during a take-off attempt. 2, the Westland "Woodpigeon" in the same test. 3, Courtney on the Parnall "Pixie III," is well above the flags. 4, a "close-up" of Bulman landing the Hawker "Cygnet." 5, Longton planting the Blackburn "Bluebird" in the landing test.

["FLIGHT" Photographs]



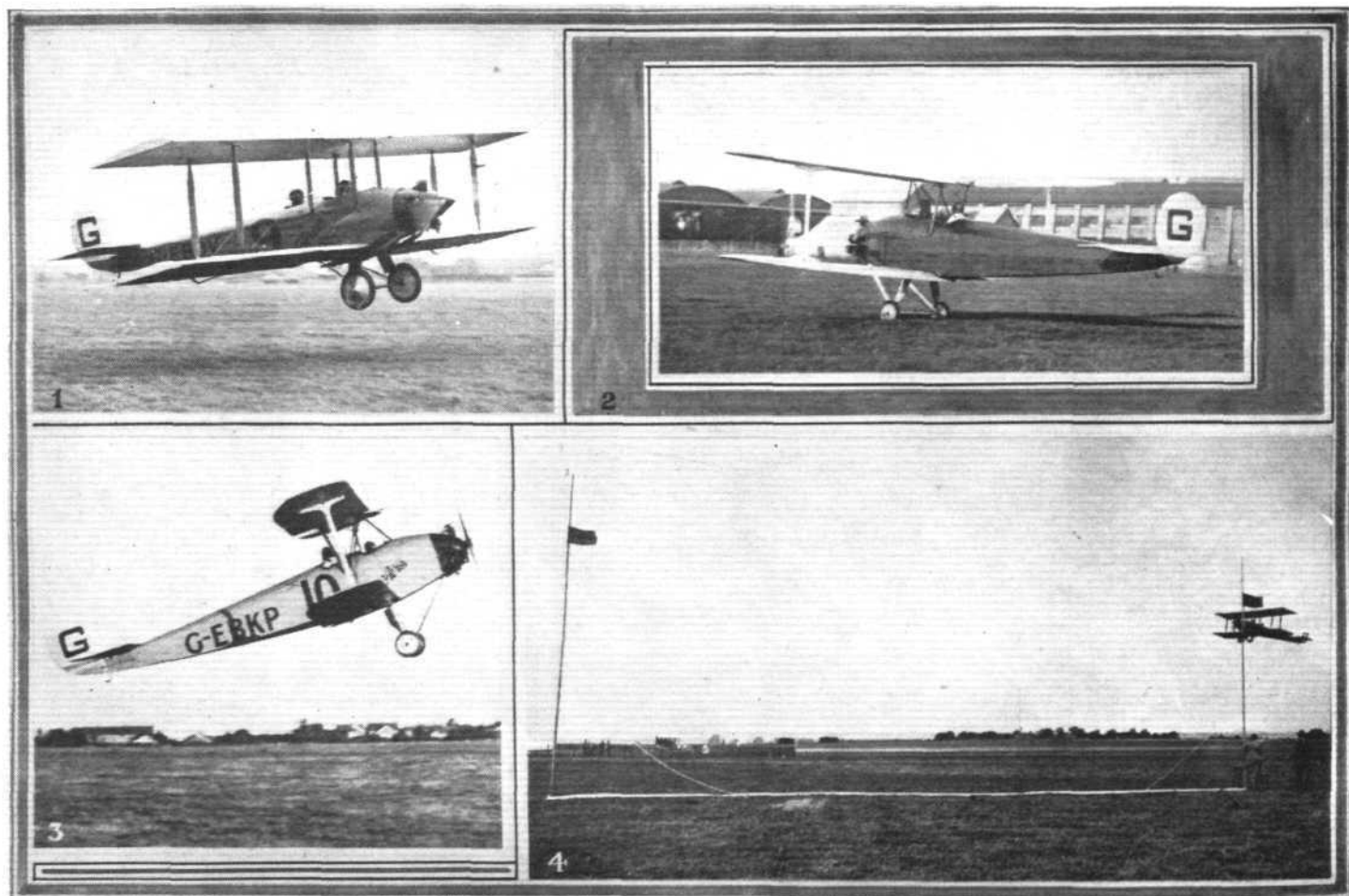
[" FLIGHT " Photographs

ELIMINATING TRIALS : In the lower photograph the de Havilland " Moth " is seen doing its get-off test, while on the right the same machine is seen in the landing test. Note the mechanic standing up to act as " air brake."

of eight had to be flown, the pilot occupying alternately the two seats. This demonstration was carried out without difficulty by all the machines. Captain Broad rounded off

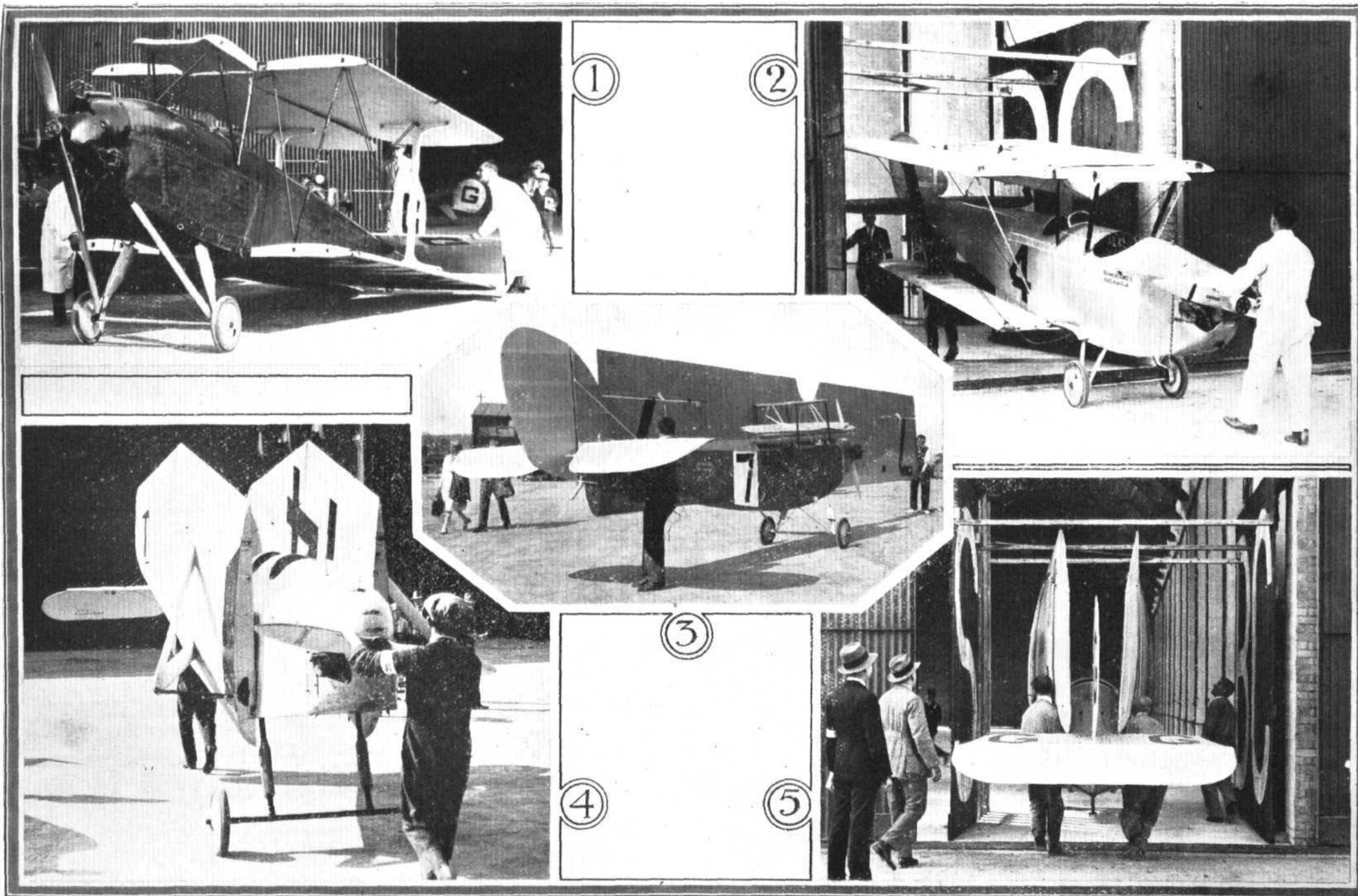
his demonstration with a beautiful show of stunt flying on the " Moth," doing loops, rolls and Immelman turns.

Then commenced what had from the start been considered



[" FLIGHT " Photographs

THE TWO AVRO'S IN THE TESTS : 1, Hinkler lands the " Avian " without difficulty. 2, Douglas away on the " Avis " on Sunday morning. This machine has since been eliminated by a damaged undercarriage. 3, the " Avis " gets its tail well down in the take-off test. 4, the " Avian " makes light of the take-off test, in spite of a useful load of 828 lbs.



THE FIRST OF THE ELIMINATING TESTS AT LYPNE : Some of the competing machines photographed during the folding, housing and re-erecting test. 1, the Avro "Avis." 2, the Farnborough Hawker "Cygnet." 3, the Supermarine "Sparrow II" which has its wings in one piece and must be transported as shown. 4, the Parnall "Pixie III," and 5, the Bristol "Brownie."

["FLIGHT" Photographs]

the critical eliminating test: taking off from standing start and clearing two barriers 25 ft. high and placed 25 yards apart, the run not to be more than 300 yards. The course for this test had been laid out so as to enable machines to start into the wind, but, unfortunately, the wind was coming in from the sea so that the take-off had perforce to be uphill, while the bamboo poles carrying the red marking flags were just about in the region of the aerodrome where, with this wind direction, one gets a strong down-current. This was not, of course, calculated to make a difficult test any easier, and when Broad attempted it on the "Moth" he failed to clear the flags. Captain Broad lodged a protest against the use of this course, pointing out that competitors were virtually asked to clear not only the 25 ft. represented by the posts, but also the extra height represented by the slope of the ground. In the meantime, Longton came out on the Blackburn "Bluebird," and cleared the flags with something like 20 ft. to spare. No. 16, the Westland "Woodpigeon," was less successful, and landed immediately, close to the road. The next to try was Flight-Lieut. Bulman, on the Hawker "Cygnet." Running along the ground until he was almost at the foot of the poles, he cleared the flags by what can only be described as "climbing up the poles" vertically and flattening out at the top. It was one of the most amazing performances one has ever seen, the "zoom" being more like that of a 400 h.p. single-seater fighter, and bearing in mind that the machine was carrying a load of 430 lbs.

Shortly afterwards the red flags were dropped 5 ft. to make

Lympne Aerodrome, Saturday, September 11.—The weather, which had been splendid during the whole of yesterday, looked this morning as if it had not yet had its instructions from the Air Ministry and was uncertain what to do. The wind had veered more around towards south-west, and clouds seemed to promise rain. However, the business of "eliminating" went on most effectively. The first machine out to do a test was the Westland "Woodpigeon," which surprised everybody by soaring like a kite over the 20-ft. barriers. It was found later that this machine was not carrying quite his full load, although within some 30 lbs. of it. It was quite obvious, however, that another 30 lbs. would not make any serious difference to his take-off, and later he did it with full load with the greatest of ease. The explanation was found to be that another propeller had been fitted, the actual propeller designed for the machine by Westlands and mentioned in the certificate of airworthiness, and which at the time of presenting this machine and the Short "Satellite" to the judges had been fitted on the latter. We gather that it was pointed out at the time that it was not quite certain which of the two would be fitted, and both were "declared." However, the judges refused to permit the change, and the "Woodpigeon" was not allowed to attempt the take-off and landing tests unless the original propeller was fitted again. In view of the fact that the wood propeller was the one designed for the machine, and specified in the C. of A., this seems a somewhat harsh view to take, and virtually means compelling the machine to fly, if it flies at all, with a propeller to which its C. of A. does not entitle it.



ELIMINATED: The Blackburn "Bluebird" damaged slightly its undercarriage and permission to effect repairs was refused.

up for the slope of the ground, and the two machines entered by the Seven Aeroplane Club came out to try their luck. Both not only failed to clear the flags, but they were not even off the ground as they passed between the poles. Captain Biard also failed on the Supermarine, and so did Comper on the Cranwell biplane.

During the afternoon two Gloster "Grebes," presumably from Hawkinge, came over and gave a very striking demonstration of "formation stunting," doing loops with their wing tips all but touching. It was a most impressive sight, and served to bring home to one how very intensive is the training done at our fighter squadrons. A visitor during the day was Captain de Havilland on the "Moth," with "Cirrus Mark II" engine. It was good news to learn that young de Havilland, who, it may be remembered, was suddenly taken ill with appendicitis on the day of the de Havilland sports meeting, was progressing so favourably that his father hopes to fly home to Stag Lane to-morrow, and bring him down to Lympne by air.

During the late afternoon the Bristol "Brownie" and the Parnall "Pixie" both passed the take-off and alighting tests, as did also No. 10, the Avro "Avis," these three machines having thus passed all their eliminating tests and being ready for the competition.

Towards evening Capt. Broad again brought out No. 2, the D.H. "Moth," and this time succeeded in clearing the 20-ft. barrier. It had been intended to put the Avro "Avian" through the take-off test also, but was found impossible to persuade the "Genet" engine to start. Darkness and 8 o'clock put a stop to proceedings for the day, only 3 out of the 12 machines having passed all tests on the first day.

The Cranwell machine sustained a broken undercarriage vee, and permission was asked to replace. This was refused, and thus the Cranwell biplane is out of the running. A similar fate befell No. 15, the Short "Satellite," which had also damaged its undercarriage. In the landing test Longton bent the axle of the "Bluebird," and while this was being removed to be straightened up, two wiring lugs on the bottom of the vees became bent. Repairs could easily be effected by putting a couple of small eyebolts through the fittings, and in fact the A.I.D., we understand, asked for this to be done. The officials, however, took the view that this was a "major repair," and refused permission.

We are all in favour of strict observance of the rules in a competition like this, but it does appear that the officials might have differentiated between comparatively small repairs carried out during the eliminating trials and repairs made during the competition itself. To rule out, for the sake of two eyebolts, a machine as promising as the "Bluebird" does not quite seem common sense. (We believe there is a possibility of the "Bluebird" going through the competition, *hors de concours*, of course, just to see how it fares, and that arrangements will be made to have the fuel measured.) The object of eliminating trials should be that of qualification for the competition itself, and not that of preventing, for some petty reason, really good machines from taking part. Let it be clearly understood that we are not in any way blaming the officials for their decision. As the regulations are worded they could scarcely have decided otherwise, but in the drafting of the rules insufficient distinction has been made between what may be done in the eliminating trials and in the competition.

However, to return to the doings of the day, Bulman

brought out the Hawker "Cygnets" and did his landing test, thus completing all the eliminating tests. Capt. Biard made a number of attempts at clearing the 20-ft. obstacle, and ultimately succeeded in getting across. He later successfully completed the landing test also. The next to try the landing test was Broad, on the "Moth," the first attempt being unsuccessful in spite of an ingenious "air brake" in the form of a mechanic standing up in his cockpit. After several attempts, however, he planted the machine before reaching the line marking the distance of 125 yards from the "theoretical" hedge. Thus one more machine was added to those ready for the competition.

In the meantime the Avro team had been striving vainly to start their engine. It was thought that the magneto might be to blame, and a fresh one was fitted. With the aid of this, and, it is understood, a bit of ether, the "Genet" was ultimately persuaded to start, and Hinkler at once proceeded to do his take-off and landing tests, both of which he appeared to complete without any difficulty whatever. Another machine which completed these two tests the first time of trying was the Farnborough Hawker "Cygnets." This added two more machines to the "eligibles," bringing the total ready for to-morrow's start up to eight. No. 16, the Westland "Woodpigeon," succeeded in getting over the 20-ft. barriers with the metal propeller, and later completed his eliminating tests by landing in less than 125 yards, bringing the final total number of machines up to 9, out of the 16 originally entered.

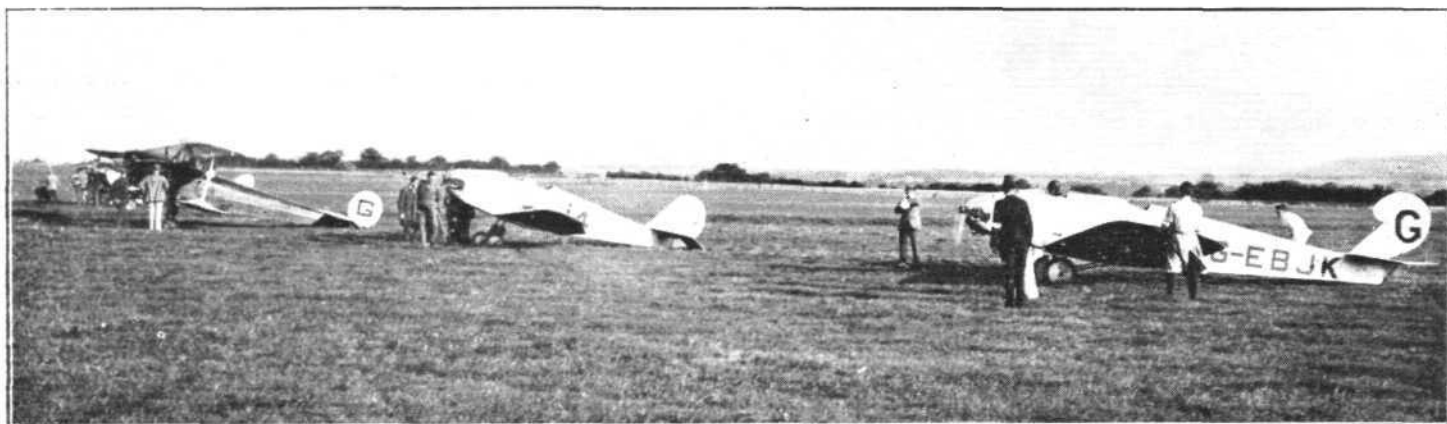
Lympne Aerodrome, Sunday, September 12. Shortly before 8 o'clock this morning the weather was perfect, with but very

strong wind, and as he feared he would not have sufficient petrol to go on to Brighton and return, he turned back. As it happened, he had not crossed the starting line at Lympne properly, and so the flight did not count as an attempt, although the petrol consumed would have to be regarded as used up in "running up," &c.

Courtney, on the Parnall "Pixie," had to alight at Brighton to effect some adjustments to the engine, and in order to make these he was obliged to break several of the official seals. On his return to Lympne there was considerable stir, and, although it was decided not to disqualify Courtney, it was pointed out that in the future any competitor who broke the seals would be liable to disqualification. There appears to be a likelihood of considerable controversy on this subject, since a competitor may easily have some slight trouble which necessitates the breaking of a seal, the only other alternative being the abandoning of the competition, so that if this attitude is insisted upon it is quite possible that by Friday not a single competitor will be left.

The pilots of the different machines had varying luck as regards weather conditions. Uwins, at the start of his second lap of the circuit, had to take off in the teeth of a rain squall, and must have been having a rough time of it, although the Bristol "Brownie" behaved wonderfully well. Hinkler ran into bad weather on the way out in one of his laps, but returned in the same lap with blue sky all the way, the rapidity with which the weather changed being little short of amazing.

Later in the day Biard came to grief on the Supermarine "Sparrow" II, bursting a tyre in a forced landing near



["FLIGHT" Photograph]

READY FOR BRIGHTON : Some of the machines lined up ready for the start on the first circuit on Sunday morning. On the right, the Bristol "Brownie," which was the first machine away. The other machines are the Parnall "Pixie," the Avro "Avis," and the de Havilland "Moth."

little wind and a visibility practically governed only by the altitude. Of the 9 machines commencing the competition proper this morning 7 had been fuelled the night before, the exceptions being No. 16, the Westland "Woodpigeon," and No. 7, the Supermarine "Sparrow II." The "Woodpigeon" was in the fuel shed promptly at 8, being filled up, and the 7 machines ready to start were on the starting line a few minutes before 8.

First to get away was Uwins on the Bristol "Brownie," who left at 8.3, followed about 5 minutes later by Courtney on the Parnall "Pixie." The wind was such that the machines could take off practically dead on their course, and so there was no delay in circling. A mechanic caused considerable amusement as he walked out to the Avro "Avian" with doping petrol in a bottle labelled "London Gin," Hinkler being one of the most abstemious of pilots. In spite of the bottle, however, the "Genet" was obstinate, and it was not until about 5 minutes past 9 that Hinkler was able to get away.

In the meantime Douglas on the Avro "Avis" had started about 8.12, Bulman on the Hawker "Cygnets" a couple of minutes later, the Farnborough "Cygnets," the D.H. "Moth," and the Westland "Woodpigeon" following shortly afterwards. The last two to get away were Biard on the "Sparrow" and Hinkler on the "Avian."

The weather, which, in the early morning, had been too good to last, gradually became worse. A very strong wind blew, with heavy rain squalls, so that the competitors did not have any too nice a time of it. Biard appeared to have lost his way somewhat and returned much earlier than he should have done, so that it was clear he could not possibly have been to Brighton and back. It later transpired that he found himself at Hastings, vainly trying to forge ahead against the

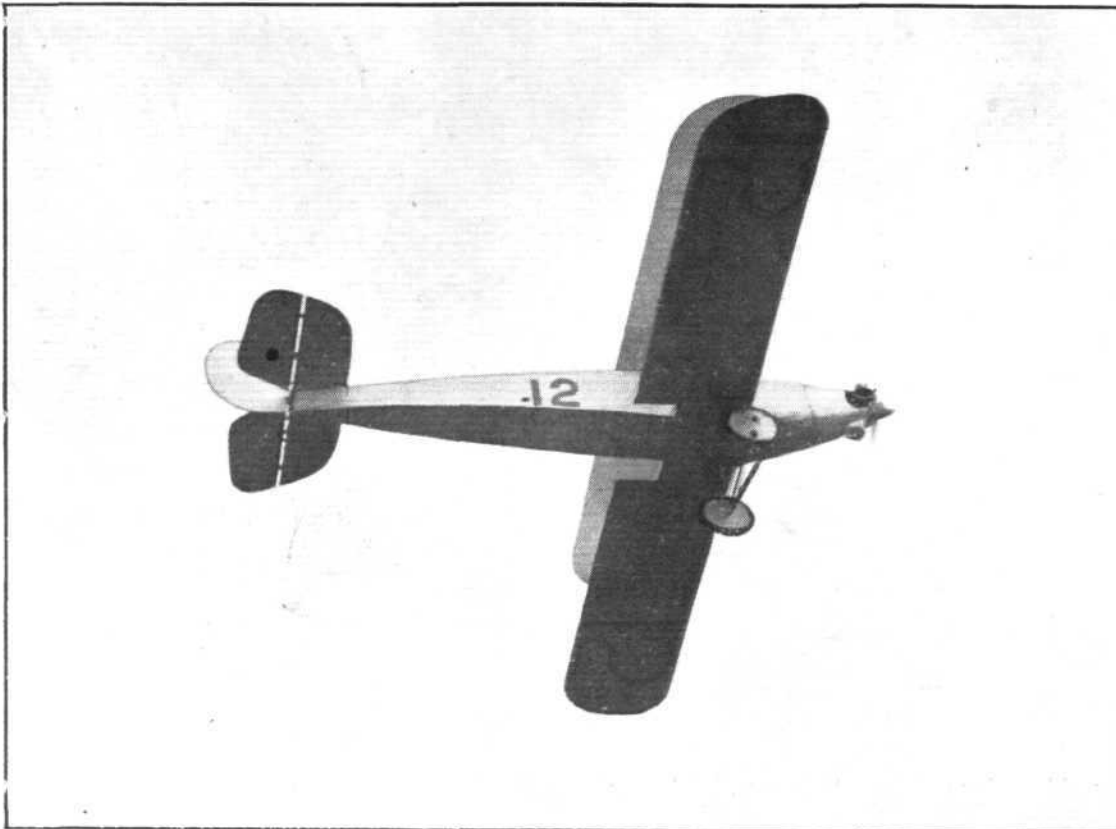
Beachy Head, pegging down for the night. No. 7 is now out of the competition, leaving but 8 machines to commence the second day's circuit to-morrow morning.

The average speeds put up, and the ratios of useful load to fuel consumed on the Lympne-Brighton circuit by the various machines during the day, were as follows :

Machine.	Average speed, m.p.h.	Useful load per lb. of Fuel.
No. 6, Hawker "Cygnets"	61.9	7.05
No. 9, Avro "Avian"	68.7	6.84
No. 4, R.A.E. Hawker "Cygnets"	53.3	6.03
No. 2, D.H. "Moth"	66.3	4.87
No. 3, Bristol "Brownie"	54.6	4.86
No. 14, Parnall "Pixie"	50.4	4.53
No. 10, Avro "Avis"	51.2	4.36
No. 16, Westland "Woodpigeon"	53.4	3.43

It will be seen that the best fuel economy was realised by Flight-Lieut. Bulman on the Hawker "Cygnets," who consumed 61 lbs. of petrol in carrying a useful load of 430 lbs. over a distance of 312 miles, this corresponding, taking petrol at 7 lbs. per gallon, to a mileage of 35.8 miles per gallon. If this high mileage can be maintained, it will mean that the "Cygnets" will do the total distance of 1,964 miles on 384 lbs. of petrol, thus obtaining a "figure of merit" of 1.12, which is extraordinarily good. In last week's issue it was pointed out that the 1923 single-seaters attained 5.86 ton-miles per gallon, the figure for the "Cygnets" is 6.86 ton-miles per gallon, so that it would appear that this machine is even more efficient than the single-seaters.

The next-best performance to-day was put up by the Avro



["FLIGHT" Photograph.
One of the
"Eliminated":
The Cranwell
C.L.A.4 biplane
damaged an under-
carriage and
was refused per-
mission to repair.
It is therefore
out of the com-
petition.

It will be seen that Bulman is still well in the lead on the Hawker "Cygnets," the general efficiency of this machine being something to be marvelled at. Yesterday Bulman consumed 61 lbs. of petrol in carrying a useful load of 430 lbs. over a distance of 312 miles, corresponding to a mileage of 35.8 miles per gallon, or to 6.86 ton-miles per gallon. Today he consumed 67.8 lbs. in carrying 430 lbs. a distance of 366 miles, a mileage of 37.7 miles per gallon, or 7.24 ton-miles per gallon. Bulman's average during the first two circuits was 128.8 lbs. of petrol for carrying a useful load of 430 lbs. over a distance of 678 miles, this corresponding to an average mileage of 36.9 miles per gallon, or 7.08 ton-miles per gallon.

In spite of his tank troubles, which must have lost him a not inconsiderable amount of petrol, Hinkler on the Avro "Avis" did not do at all badly. His "figure of merit" for the two circuits was 3.12, and his consumption on the second circuit was 144 lbs., or approximately 20.58 gallons. His mileage during the second circuit was 17.8 miles per gallon, or 6.58 ton-miles per gallon, as compared with 18 miles per gallon and 6.66 ton-miles per gallon in the first circuit. It will be seen that, whereas Bulman did rather better on his second circuit than on his first, Hinkler did not do quite so well in the second circuit, the difference no doubt being accounted for by the leaky tank. If this trouble can be

["FLIGHT" Photograph

A very excellent
show: Two
Gloster "Grebes"
came over from
Hawkinge during
the meeting and
gave a wonderful
demonstration of
evolutions in
"formation."
They are here
seen about to re-
turn to their nest.



At the other end of the scale: On Sunday last an Armstrong-Whitworth "Argosy" with three Armstrong-Siddeley "Jaguar" engines paid a short call to give its passengers an opportunity to see some of the smaller fry, leaving later, presumably, for "furrin parts."

["FLIGHT" Photograph]



overcome, the "Avian" may still catch up with the "Cygnet." Hinkler's average for the two circuits is 17.9 miles per gallon, or 6.62 ton-miles per gallon.

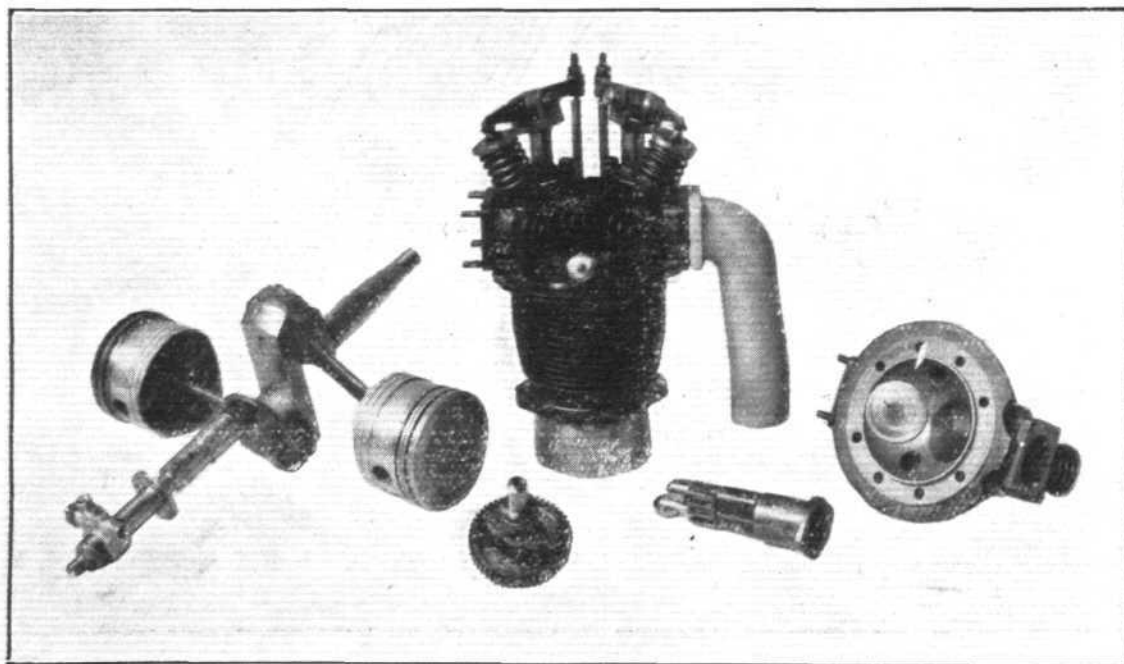
Naturally, the keen rivalry between these two machines for first and second place is arousing great interest and, provided both continue at their present average throughout the remaining portion of the 1,964 miles to be covered, the "Cygnet" will have consumed 373 lbs. of petrol, giving a "figure of merit" for the total course of $\frac{430}{373} = 1.15$. The corresponding figures for the "Avian" would be: total petrol consumption, 768 lbs., and total "figure of merit," $\frac{828}{768} = 1.08$ approximately. However, much may yet happen to alter these figures.

Lympne Aerodrome, Tuesday, September 14:

Good weather and a light wind enabled the seven light planes still in the competition to make better speeds and consumptions than on previous days. The course was from Lympne to Dover, thence to Manston Aerodrome, North Foreland lighthouse, Reculver Towers, and back to Lympne, and had to be covered six times, giving a total mileage for the day of 396 miles. During the early morning, Hinkler again had to have his tank sent to Hythe, where it is now

becoming a regular daily visitor. However, the tank was repaired, and Hinkler completed his course in order, in spite of a loose propeller and a still-leaking tank. The latter was to some extent remedied by plastering it with cakes of soap, a makeshift cure only necessitated by the regulations which prevent a sensible remedy.

During the day one more competitor was eliminated. Flight-Lieut. Ritchie had a forced landing on the Westland "Woodpigeon," near Canterbury, due to a seized rocker arm. The delay threatened to put the machine out of the competition, but by a great "hustle" on the part of all concerned, the machine was got ready again, and it was touch and go whether it would be able to make up its lost time and get back from the last lap before 8 p.m. The pilot on this occasion was Flight-Lieut. Park, and as dark approached, the landing lights on the aerodrome were put on. At five minutes to eight there was no sign of the machine. At two minutes to eight, its engine could just be heard, but when the little "Woodpigeon" crossed the finishing line, it was 48 seconds past eight. A loud cheer went up, which was richly deserved, as Lieut. Park had been flying in darkness during the last half-hour or more, a performance which few would care to emulate. Thus the Seven Aeroplane Club's last hope is gone, a fact which everyone will regret, the more so as the machine has been struggling along under adverse conditions.



The A.B.C. "Scorpion II": Two general views of this engine were published last week. The components shown in this photograph include the crankshaft and connecting-rod assembly, pistons, cylinder unit, camshaft with its driving wheel, tappets, and cylinder head.

Squadron-Leader Longton put up a fine performance during the day on the eliminated Blackburn "Bluebird." Flying over the 12½ miles' Lympe course, he covered 32 laps (400 miles) in six hours' flying time, with one landing for refuelling.

At the end of the day's flying Lieut. Bulman was still leading on the Hawker "Cygnet," with Hinkler second on the Avro "Avian."

The miles per gallon and ton-miles per gallon accomplished by the various competitors are as follows:—Hawker "Cygnet" 37.5 m.p.g.; 7.2 ton-m.p.g. Avro "Avian," 17.86 m.p.g.; 37.5 m.p.g.; 7.2 ton-m.p.g. Farnborough Hawker "Cygnet," 35.9 m.p.g.; 6.6 ton-m.p.g. Bristol "Brownie," 34.7 m.p.g.; 5.26 ton-m.p.g. De Havilland "Moth," 16.5 m.p.g.; 5.15 ton-m.p.g. Parnall "Pixie" 32.55 m.p.g.; 4.94 ton-m.p.g.

In the following table are given official particulars up to the end of the third day's flying, the figures being for a total distance flown of 1,074 miles:—

Machine.	Total Flying Time.			Average Speed.	Petrol Consumed.	Figure of Merit.
	h.	m.	s.	m.p.h.	lbs.	
Hawker "Cygnet"	16	21	3	65.68	200	2.147
Avro "Avian"	14	49	16	72.46	421	1.962
R.A.E. "Cygnet"	18	53	21	56.86	209	1.736
Bristol "Brownie"	18	5	54	59.34	217	1.564
D.H. "Moth"	14	41	9	73.13	456	1.537
Parnall "Pixie"	18	30	59	58.00	231	1.470

THE RACE FOR THE GROSVENOR CHALLENGE CUP

26 Machines Entered

AN extremely good entries list has resulted from the announcement of the race to be held at Lympe aerodrome on Saturday next for the Challenge Cup presented by Lord Edward Grosvenor, and prizes of £75 and £25 presented by Sir Charles Wakefield, Bart. The course for this race, which is open to any aeroplane the weight of the engine of which does not exceed 275 lbs., is the triangular one at Lympe of 12½ miles, with turning points at Lympe, Postling and Hastingleigh, and which has to be covered six times, giving a total distance of 75 miles. The race, which is to be held under the Competition Rules of the Royal Aero Club, will be a handicap one, and no less than 26 machines have been entered.

Brief particulars of each entry will be found below, where particulars are given in the following order: Number or identification mark, aeroplane and engine, entrant, and pilot. The machines carrying numbers are those also participating in the light 'plane competition.

1, Blackburn "Bluebird," Armstrong-Siddeley "Genet": R. Blackburn; Sq.-Ldr. W. H. Longton, D.F.C., A.F.C.

2, De Havilland "Moth," Armstrong-Siddeley "Genet": A. S. Butler; Capt. H. S. Broad.

3, Bristol "Brownie," Bristol "Cherub": Sir G. Stanley White, Bart.; C. F. Uwins.

4, R.A.E. Aero Club Hawker "Cygnet," Bristol "Cherub": M. Harris; Flight-Lieut. J. A. Gray, D.F.C., or Flying Officer R. L. Ragg.

5, "Sirocco" monoplane, Bristol "Cherub": S. O. Smith; Flying Officer Mackenzie Richards, or Flying Officer R. L. Ragg.

6, Hawker "Cygnet," Bristol "Cherub": T. O. M. Sopwith, O.B.E.; Flight-Lieut. P. W. S. Bulman.

7, Supermarine "Sparrow II," Bristol "Cherub": Commander James Bird; Capt. H. C. Biard.

8, Halton Biplane H.A.C. I, Bristol "Cherub": Wing-Commander C. D. Breese, A.F.C.; Flight-Lieut. F. le P. Trench, or Flight-Lieut. C. G. Halliday.

9, Avro "Avian," Armstrong-Siddeley "Genet": Sir William Letts, K.B.E.; Bert Hinkler.

10, Avro "Avis," Blackburne "Thrush": A. V. Roe; Wing-Commander W. Sholto Douglas, M.C., D.F.C.

12, Cranwell C.L.A. 4, Bristol "Cherub": Flight-Lieut. N. Comper; Flight-Lieut. H. S. P. Walmsley.

13, A.N.E.C. "Missel-Thrush," Blackburne "Thrush": H. W. Martin; Lieut.-Col. G. L. P. Henderson.

14, Parnall "Pixie III," Bristol "Cherub": George G. Parnall; Frank T. Courtney.

15, Short "Satellite," A.B.C. "Scorpion": Flying Officer G. E. F. Boyes; Flying Officer G. E. F. Boyes.

16, Westland "Woodpigeon," A.B.C. "Scorpion": Flight-Lieut. A. P. Ritchie; Flight-Lieut. A. P. Ritchie.

G-EBHS, R.A.F. "Hurricane," Bristol "Cherub": P. N. G. Peters; Flight-Lieut. J. S. Chick, M.C., A.F.C.

G-EBHZ, De Havilland 53, A.B.C. "Scorpion": Flight-Lieut. A. L. A. Perry-Keene; Flight-Lieut. A. L. A. Perry-Keene.

G-EBJT, Westland "Widgeon," Armstrong-Siddeley "Genet": R. A. Bruce; L. P. Openshaw.

G-EBKT, De Havilland "Moth," 60 h.p. "Cirrus": Mrs. S. C. Elliott-Lynn; Mrs. S. C. Elliott-Lynn.

G-EBMC, Cranwell C.L.A. 3, Bristol "Cherub": F. H. Cashmore; Flight-Lieut. N. Comper.

G-EBME, De Havilland "Moth," 60 "Cirrus": W. L. Hope; W. L. Hope.

G-EBMJ, Short low-wing monoplane, 60 "Cirrus": H. O. Short; J. Lankester Parker.

G-EBMO, De Havilland "Moth," "Cirrus, Mark II": Col. the Master of Sempill; Col. the Master of Sempill.

G-EBNO, De Havilland "Moth," "Cirrus, Mark II": Capt. G. de Havilland; Capt. G. de Havilland.

—, De Havilland "Moth," 60 "Cirrus": Maj. H. de Havilland; Maj. H. de Havilland.

G-EBJO, A.N.E.C. II, British Anzani: N. H. Jones; N. H. Jones.

Appointments to Department of Scientific and Industrial Research

PROFESSOR VERNON HERBERT BLACKMAN, Sc.D., F.R.S., Professor Frederick George Donnan, C.B.E., D.Sc., LL.D., F.R.S., and Professor Frederick Alexander Lindemann, Ph.D., F.R.S., have been appointed by Order of Council dated August 20, 1926, to be members of the Advisory Council to the Committee of the Privy Council for Scientific and Industrial Research, in the place of members who have retired on the completion of their terms of office.

Philadelphia-Washington Air Service

THE Philadelphia-Washington airline, which was opened on July 6, and on which Fokker trimotors, type F.VIII-3m, are exclusively used, has proved a complete success. During the first month over one thousand passengers have been carried, which means that each 'plane started with a full complement of passengers. For the moment the P.R.T. cannot satisfy all the demands owing to lack of 'planes. As soon as the first series of 10 machines are delivered, the service, which is now being made twice a day in each direction, will be considerably extended, whereas also communications with other towns will be established after completion of the second series of 10 machines. The American Fokker factory is working day and night in order to carry out the orders for commercial planes which pour in from all parts of the States.

New Continental Air Service Schemes

A NEW company, the Italian Aero Lloyd, is being formed in Italy, the aims of which will be the operation of an air service between Rome and Munich, via Bologna and Milan, a distance of nearly 500 miles. Probably other services will also be considered.

Another scheme is that planned by the Aero Club of Norway—the establishment of a regular service between Norway and England. Arrangements have been made for a trial flight next month, when a Dornier Wal or Fokker seaplane will fly between Oslo and Harwich.

British Standard Specification for Brazing Solder (Grades A and B)

THE British Engineering Standards Association has now issued a Specification (No. 263-1926) covering two grades of brazing solder. The copper contents for the two grades range from 53 to 55 per cent. and from 49 to 51 per cent. respectively, maximum limits being specified for the tin, antimony, arsenic, bismuth, iron and lead permitted in the alloy. A table is included as an appendix to the Specification giving a range of grain sizes of granular solder to which it is recommended that the material be ordered. Copies of this publication may be obtained from the B.E.S.A. Publications Department, 28, Victoria Street, London, S.W.1, price 1s. 2d., post free.

THE NEWCASTLE AERO CLUB'S FIRST FLYING MEETING

THE Newcastle Club's First Flying Meeting, which was held at Cramlington Aerodrome on September 4, was a complete success from every point of view. Excellent weather prevailed, and the various forms of advertising used proved effective and drew spectators from all parts of the three Northern Counties.

By kind permission of the Air Ministry and the Commanding Officer, Squad. 406 Fleet Fighter Flight of Fairey "Flycatchers," under Flight-Lieut. T. Williams, M.C., D.F.C., took part in the display, the meeting being opened by an excellent display of aerobatics by Flying Officer C. B. Wincott, which aroused the enthusiasm of the spectators, few of whom had ever seen anything of the kind previously.

Later in the afternoon, the six "Flycatchers" took the air

the aerodrome, but they readily returned to the barriers when the match was over.

Apart from incidental events, such as exhibition flying, and competitions by the Newcastle and District Motor Club, some half-dozen flying races were got through. With one exception the machines taking part were all D.H. "Moths"—(27-60 h.p. "Cirrus")—the exception being Air Commodore J. G. Weir's D.H. 51A (120 h.p. Airdisco). The final competition—landing—was crowded out of Saturday's proceedings, but was run off on the Sunday morning.

These events resulted as follows:—

Instructors' Race (20 miles).—1. J. D. Parkinson, Newcastle; 2. F. G. M. Sparks, London; 3. A. M. West, Yorks—all on "Moths."



NEWCASTLE AERO CLUB'S FIRST FLYING MEETING: Some "snaps" taken at Cramlington. (1) J. D. Parkinson, the N.Ae.C. Instructor, won the first event (Instructors' Race for President's Cup) for Newcastle, and is "chained" as a result. (2) and (3) Fairey "Flycatchers" from 406 Squadron (Fleet Fighter) visited the meeting and gave fine displays. (4) "North v. South":—J. D. Parkinson, of Newcastle, has a chat with F. G. M. Sparks, of London, who was second in the Instructors' Race.

and gave an exhibition of formation flying, and after an impressive dive, in formation, on the aerodrome, departed for their base.

Shortly after their departure, two Woodcocks from No. 17 Night Flying Squadron, which were on detached duty, arrived, and at the first opportunity Flight-Lieut. D. S. Don gave an exhibition of the wonderful climbing powers of this machine.

The programme opened dead on time—1500 hours—with a masterful display by Capt. H. S. Broad, on the King's Cup "Moth." It is very gratifying, indeed, to find, in an area not considered to be very deeply interested in flying, that such evolutions as slow flying and down-wind loops was fully appreciated by a very large proportion of those present.

The thanks of this Club are extended to Air Commodore J. G. Weir and the following Clubs—The London Aeroplane Club and the Yorkshire Aeroplane Club, who so sportingly entered machines. Members of both these Clubs attended, in spite of the distance they had to travel.

It was unfortunate that the football match, between teams mounted on motor-cycles, resulted in the spectators invading

Private Owners' Handicap (20 miles).—1. A. N. Kingwell, D.H. 51A; 2. H. S. Broad, "Moth."

Open Handicap (20 miles).—1. A. N. Kingwell, D.H. 51A; 2. H. S. Broad, "Moth"; 3. J. D. Parkinson (Newcastle), "Moth."

Inter-Club Relay Race.—1. Yorkshire (A. M. West, E. B. Fielden and R. Kenworthy); 2. Newcastle (J. D. Parkinson, T. R. MacMillan and N. S. Todd); 3. London (F. G. M. Sparks, R. Malcolm and E. D. Moss).

Inter-Club Members' Scratch Race (10½ miles).—1. Dr. H. L. B. Dixon (Newcastle), "Moth"; 2. R. Malcolm (London), "Moth."

Bomb Dropping.—1. J. D. Parkinson (Newcastle); 2. A. M. West (Yorkshire); 3. F. G. M. Sparks (London).

Landing Competition.—1. A. M. West (Yorkshire); 2. R. Kenworthy (Yorkshire).

On Sunday afternoon the members of the Newcastle Club competed for the Cup presented by Thos. Todd, Esq. All the pilots who hold licences took part, and the win by Mr. R. N. Thompson was exceedingly popular, Dr. Dixon being a close second.

LIGHT 'PLANE CLUB DOINGS

London Aeroplane Club

The total flying time for the week ending September 12 was 52 hours. The following members had flying instruction:—Lady Bailey, C. H. Gould, E. G. Richardson, G. C. Bonner, M. D. Hamilton, A. L. A. Petty, R. A. St. John, J. C. Parkinson, G. Black, F. Clarkson, Sir John Rhodes, F. W. R. Martino, F. S. Boulton, E. K. Blyth, Lady M. Douglas-Hamilton, A. J. Richardson, D. Usher, J. A. R. Stevenson, J. Barros, R. L. Portway, H. Solomon, K. N. Pearson, B. B. Tucker, O. H. Best, M. P. Susman, C. H. Tutt, H. R. Presland, V. H. Doree, C. E. Murrell, G. M. Hall, E. A. Lingard.

The following members flew solo:—N. J. Hulbert, L. J. C. Mitchell, Major Beaumont, E. G. Richardson, G. H. Craig, M. L. Bramson, Miss O'Brien, E. S. Brough, N. Jones, J. A. R. Stevenson, O. J. Tapper, A. H. M. Lees, H. Petre, E. D. Moss, R. C. Presland, K. N. Pearson, B. B. Tucker, R. Malcolm, W. Hay, E. E. Stammers.

The following had joy-rides:—Miss Wilson, Miss Morris, Mrs. Stammers, Major Maxwell, C. E. Burrows, Miss Gibson, Miss Terry, R. H. O. Tubbs, B. King, H. V. Stammers.

The Hampshire Aeroplane Club

Report for week ending September 9:—

Total flying time, 17 hrs.; instruction flying, 12 hrs.; passenger flying 5 hrs.

The following Members received instruction:—Miss Home, 1 hr. 32 mins.; Messrs. Fry, 2 hrs.; Bumble, 1 hr. 15 mins.; Perfect, 1 hr. 10 mins.; Bound, 50 mins.; Bishop, 40 mins.; Heathcote, 30 mins.; Dobson, 28 mins.; Bowen, 20 mins.; Kerry, 20 mins.; Courtney, 25 mins.; Nicholson, 20 mins.; Heathcote, 20 mins.; Everett, 20 mins.; Henderson, 20 mins.; Carnell, 18 mins.; Dartnall, 15 mins.; Wing-Commander Wyllie, 10 mins.; Morley, 10 mins.; Flight-Lieut. Crawford, 10 mins.; Stokes, 8 mins.

On Saturday, September 4, the Club was honoured by a visit from Air Vice-Marshal Sir Sefton Brancker, C.M.G., D.S.O. He was met at Southampton by Mr. O. E. Simmonds, Chairman of the Committee and Mr. R. V. Perfect, Hon. Assistant Secretary.

Sir Sefton spent the afternoon on the aerodrome watching the "Moths" flying, and after taking tea in the Club House, he was flown to Beaulieu by Captain Thomson.

On Monday, September 6, Captain Thomson flew to Beaulieu where he picked up Sir Sefton Brancker and conveyed him to Lympe. The journey from Beaulieu to Lympe was accomplished in 1 hr. 30 mins. in spite of very poor visibility, which necessitated flying within 50 ft. of the water for long stretches.

Captain Thomson flew back to Hamble again on Monday afternoon.

The Lancashire Aero Club

TOTAL time flown, 35 hrs. 10 mins. On two days owing to bad weather flying has been impossible. Machines in use L-R and M-Q, (Moths) O-K (Avro).

Mr. Stack gave instruction to:—Messrs. Costa, 6 hrs. 50 mins.; Gerrard, 2 hrs. 35 mins.; Anderson, 1 hr. 40 mins.; Hughes, 1 hr. 30 mins.; Heys, 35 mins.; Newton, 35 mins.; Gattrell, 35 mins.; Dyson, 30 mins.; Leigh, 30 mins.; Moss, 30 mins.; Nelson, 30 mins.; Newton, 30 mins.; Fallon, 25 mins.; Collinson, 25 mins.; Bert, 25 mins.; Pattieuex, 20 mins.; Goodyear, 15 mins.

Mr. Scholes gave instruction to:—Messrs. Benson, 35 mins.; Fray, 35 mins.; Gattrell, 25 mins. Tests occupied 1 hr. 30 mins.

Solo flights by Messrs. Goodfellow, 3 hrs. 5 mins.; Parker, 2 hrs. 15 mins.; Leeming, 2 hrs. 5 mins.; Pitman, 1 hr. 15 mins.; Agar, 1 hr.; Lacayo, 1 hr.; Michelson, 45 mins.; Williams, 45 mins.; Marsland, 25 mins.

The following had joy rides with Messrs. Goodfellow, Leeming and Stack:—J. English, 25 mins.; A. Nelson, 15 mins.; H. Southern, 15 mins.; Mrs. Southern, 15 mins.; Mrs. Mills, 15 mins.; A. Berry, 10 mins. F. Scholes, 10 mins.; A. Smith, 10 mins.

Those visiting Woodford for the Display on September 26 are advised to book rooms at the Queen's Hotel, Alderley Edge. Alderley Edge is within four miles of Woodford Aerodrome, and is on the main Euston-Manchester L.M.S. line. It is also on the main Manchester to Coventry road; it is the most convenient village to the aerodrome which has excellent rail, bus and motoring facilities. The Queen's Hotel is recommended.

Newcastle-upon-Tyne Aero Club

Report for week ending September 12:—All flying on G-EBLX, LY being overhauled for C. of A. Total flying time, 38 hrs. 59 mins. Dual instruction with Mr. Parkinson, 29 hrs. 35 mins. Solo, 8.00; passenger, 1.15. The following members had instruction:—Sir Jos. Reed, Messrs. E. C. Kennedy, Stobie, Whitfield, Leete, Harrison, Irving, H. Ellis, Bruce, Bell, Wardill, Craig, Thirlwell, J. M. Kennedy, Turnbull, Gilmore, Charlton, Mrs. Marcks, Matthews, Carr. Solo:—Mr. Baxter Ellis, with passengers (Mr. Waller, Mr. H. Ellis and Mrs. Baxter Ellis), Mr. L. Smith, Mr. C. Thompson, Mr. F. H. Phillips (with Miss Ellis), Dr. Dixon (with Mr. Davidson, Mr. Grey, Mr. Gibson, Mr. A. Bell, Mr. Charlton, Mr. Grundy), Mr. N. S. Todd, Mr. Shales and Miss Little.

Passengers with Mr. Parkinson:—Mrs. Wilson, Mr. Murray, Lemaistre, Boulton.

A report on the club's first flying meeting will be found on page 604.

ROYAL AERONAUTICAL SOCIETY



Grant from the Guggenheim Fund for the Promotion of Aeronautics.—Mr. Harry F. Guggenheim, President of the Daniel Guggenheim Fund for the Promotion of Aeronautics, Inc., has written, under date August 25, to say "it affords me great pleasure to advise you that the Daniel Guggenheim Fund for the Promotion of Aeronautics, Inc., has approved a grant of 5,000 dollars to the Royal Aeronautical

Society to enable it more easily to continue its splendid contributions to the aeronautical science of the world. It is the hope of the Fund that this grant may stimulate the growth

and strength of the Society to such a point that within a short while financial assistance from without will be unnecessary."

This generous donation to the Funds of the Society comes at a time when financial assistance is urgently required so that the Society can extend its present activities and carry out the projects which it has in view and which have been held up by lack of funds.

At a Council Meeting held on September 7 it was resolved that a cable should be sent to Mr. Harry F. Guggenheim expressing the grateful thanks of the Council for this very generous contribution to their funds.

J. LAURENCE PRITCHARD,
Honorary Secretary.

Royal Aeronautical Society, Coventry Branch at Whitley Aerodrome: Members of the Coventry branch of the Royal Aeronautical Society recently paid a visit to Whitley Aerodrome and the Works of Sir W. G. Armstrong Whitworth Aircraft, Ltd. An interesting time was spent inspecting the metal construction plant, and flying demonstrations, showing the flexibility of the "Jaguar" engine, by a fast scout, after which the members were entertained to tea and the accompanying photograph was taken.



Thoret Flies over Mt. Blanc

LIEUT. THORET recently succeeded in making three flights over the summit of Mt. Blanc, during which he dropped food and electrical accessories close to the Vallot Observatory, thus demonstrating that the staff, hitherto often in danger of being cut off from communication with civilisation, can be re-victualled from the air.

Semi-Rigid Airship for Russia

A SEMI-RIGID airship, of similar type to the "Norge" on which Capt. Amundsen flew over the North Pole, has been ordered from the Italian factory by the Russian Soviet Government. This airship will have a total capacity of 53,000 cub. m. (1,872,000 cub. ft.) and will be driven by six engines.

PRAGUE—PARIS—PRAGUE ON AN AVIA LIGHT 'PLANE

A VERY fine flight on a light plane was recently accomplished by the well-known Czecho-Slovakian pilot, Lieut. Jira. Leaving the Prague aerodrome at 4.50 a.m. on August 31 he flew in the direction of Paris, and at 11.20 a.m. he passed over the Le Bourget aerodrome, having covered the 950 km. (590 miles) without landing. He did not stop at Le Bourget,

tion of the B.H. 11, which obtained first place in the recent Concours d'Avions Economiques at Orly.

When it left Prague, L-BONG carried 250 kg. (551.25 lb.) of petrol and 19 kg. (41.9 lb.) of oil, of which 205 kg. (452 lb.) of petrol and 6.8 kg. (15 lb.) of oil were consumed during the flight. The total weight of the machine, ready for flying,



PRAGUE-PARIS-PRAGUE IN A LIGHT 'PLANE : Lieut. Jira, the well-known Czecho-Slovakian pilot, and the Avia B.H.9 (60 h.p. Walter engine), on which he flew from Prague to Paris and back non-stop on August 31—a distance of 1,180 miles in 13 hrs. 43 mins.

but immediately turned homeward, and flew non-stop back to Prague, where he arrived at 6.33 p.m.

The total distance of about 1,900 km. (1,180 miles) was thus covered in 13 hours 43 minutes in a non-stop flight. The machine used on this flight was the Avia B.H. 9 (L-BONG), a low-wing monoplane fitted with a 60-h.p. Walter air-cooled radial engine. This machine is used in the Czecho-Slovakian Army Air Service as a two-seater school 'bus, and is a modifica-

tion of the B.H. 11, which obtained first place in the recent Concours d'Avions Economiques at Orly. When it left Prague, L-BONG carried 250 kg. (551.25 lb.) of petrol and 19 kg. (41.9 lb.) of oil, of which 205 kg. (452 lb.) of petrol and 6.8 kg. (15 lb.) of oil were consumed during the flight. The total weight of the machine, ready for flying,

was 750 kg. (1,653.75 lb.), so that the loading figured out at 53 kg. per sq. m. (10.8 lb. per sq. ft.) and 12.5 kg. (27.5 lb.) per h.p. Nevertheless, the machine took off quite easily and climbed satisfactorily. This latest accomplishment of the Avia B.H. 9 is something of a record for light planes as regards distance, average speed and low-consumption figures, and forms an excellent demonstration of the remarkable efficiency of these little machines.

ALAN COBHAM'S FLIGHT HOME

FORTUNE has not favoured Mr. Alan Cobham during the past week, and his hopes of making a speedy and record dash home from Australia have been, to a certain extent, marred. Mr. Cobham, with Sergt. Ward and Mr. Capel, left Penang in the D.H. 50J. (Siddeley "Jaguar") seaplane, at daybreak on September 8 *en route* for Rangoon. The day came to a close, however, without any further news of him, some anxiety being caused at Rangoon by his non-arrival.

The following morning, however, the Port Officer at Rangoon received a telegram to the effect that Mr. Cobham had been forced down by bad weather at Puket—a small island town, 160 miles from Victoria Point. Mr. Cobham was expected to reach Rangoon that afternoon, but he did not turn up, and on September 10 a message was received from Penang, stating that he was still held up by bad weather at Victoria Point.

Then four days passed without any further news of the airmen, and keen anxiety was felt as to their safety. There is no telegraphic communication between Rangoon and Victoria Point, and vessels passing along this part of the coast reported very bad weather conditions in the vicinity of Victoria Point. Eventually, the Burma Government made

every possible effort to get into touch with Mr. Cobham, or obtain news of his whereabouts, but without success.

At last, on September 14, a message was received from Mergui—about midway between Victoria Point and Rangoon—that Mr. Cobham had passed over this port *en route* for Rangoon. At the time of writing, no further details are available, so we must leave Mr. Cobham's adventures for next week's issue of FLIGHT. Considerable satisfaction will, however, be felt by all at the news of the three airmen's safety.

We are asked to announce that the Institute of Aeronautical Engineers propose to give a dinner in honour of Mr. Cobham and his companions, upon the completion of his Australian flight.

This function, it is hoped, will be held on September 30, at Kettner's Restaurant, Church Street, London, W. (just behind the Palace Theatre), at 8 p.m., at which Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., will preside. Non-members may obtain tickets for this dinner (15s., exclusive of wines) from the Secretary, Institute Aeronautical Engineers, 34, Broadway, Westminster, S.W.1, from whom all further particulars may also be obtained.

THE ROYAL AIR FORCE

London Gazette, September 10.

General Duties Branch

The following are granted short service commissions as Pilot Officers on probation, with effect from and with seniority of September 1:—
L. T. Carruthers, T. H. Downes, J. G. Elton, D. L. Maclean, J. F. Moir, R. S. Munday, L. Newcombe, G. J. Powell, G. A. Robinson, A. D. Vigors, H. N. C. Williams.

The following are granted temporary commissions as Flying Officers on attachment for four years' duty with the R.A.F.:—

Lieuts., R.N.: I. N. M. Mudie, C. A. R. Gibb, G. M. Pares, E. H. P. Slessor, R. P. Garnett, F. W. N. Bassett, J. W. Hale, R. F. G. Salmond, H. A. Traill, A. M. McKillop; Sept. 1.

Sub-Lieuts., R.N.: J. E. Fenton, R. H. Barrett, C. W. Phillips; Sept. 1.
The following Pilot Officers are promoted to the rank of Flying Officer:—
F. S. Homersham, D.C.M., M.M.; Aug. 6. C. A. Bell; Aug. 17. E. Addis; Aug. 17. G. H. Noble; Aug. 21.

Flight-Lieut. A. W. Symington, M.C., is placed on half-pay, Scale B; Sept. 5.

The following Flying Officers are transferred to the Reserve, Class A:—
H. C. E. C. P. Dalrymple, J. M. Darroch, H. V. Michell, W. H. Phillips, C. J. Pooley, W. J. E. Rodwell, B. H. Shaw, A. E. Stewart, W. P. Wiltshire; Sept. 2. F. R. Offord (Lieut., R.A.R.O.); Sept. 6.

Accountant Branch

Flying Officer R. W. Freeman is granted a permanent commission in this rank; Sept. 8.

The following Flying Officers are transferred to the Reserve, Class C; Sept. 5:—A. C. Pritchard, F. L. Wood.

Medical Branch

Flying Officer F. L. White is granted a permanent commission in this rank; Sept. 8.

The following are granted short service commissions as Flying Officers for three years on the active list, with effect from and with seniority of the dates indicated:—E. A. Rice, M.B.; Aug. 16. C. W. Coffey; Aug. 24.

302627 Sgt.-Maj. D. Breen is granted a permanent commission as a Medical Quartermaster and Flying Officer; Sept. 1. Squadron-Leader C. L. Colbrau is promoted to the rank of Wing Commander (Dental) on promotion to Lieut.-Col. in the Army Dental Corps; July 1.

Reserve of Air Force Officers

V. P. Field is granted a commission in Class A General Duties Branch as a Pilot Officer on probation; Sept. 7. Flying Officer E. C. Hoar is confirmed in rank; Sept. 2. Flight Lieut. S. H. Gaskell is transferred from Class C to Class A; June 10. Flying Officer W. H. Whitlock is transferred from Class A to Class B; June 19.

The following Flying Officers are transferred from Class A to Class C:—
J. M. Leach; May 29. A. B. Cree; Aug. 13.

Flight-Lieut. P. A. de Fontenay, D.F.C., ceases to be employed with the Regular Air Force; Sept. 7. The commission of Pilot Officer on probation J. Kennagh is terminated on cessation of duty; Aug. 18.

AUXILIARY AIR FORCE

General Duties Branch

The following to be Pilot Officer:—No. 600 City of London (Bombing) Squadron; W. R. Massey; Aug. 28.

ROYAL AIR FORCE FLIGHT CADETSHIPS

Openings for a Flying Career

THE Air Ministry announces:—The next examination of candidates for entry as flight cadets to the Royal Air Force Cadet College, Cranwell, in January, 1927, will begin on November 16. On this occasion not less than 35 cadetships will be offered. Forms of entry, which can be obtained from the Secretary, Civil Service Commission, Burlington Gardens, W.1, will not be accepted in any circumstances later than September 29.

All candidates must be fit and willing to fly and be between the ages of 17½ and 19½. With the exception of those nominated by the Air Council on the recommendation of Headmasters, they are required to produce school certificates A or B, obtained by passing certain specified examinations, before their candidature is approved. The examination is, in the main, a written one, and is held in London and at various other centres, but each candidate must also attend an Interview Board at the Civil Service Commission.

Successful candidates, after passing the Royal Air Force Medical Board, undergo a two years' course at the college, where, in addition to continuing their general education, they receive a thorough training in all questions concerning service aviation and cognate subjects, and graduate as pilots, on service aeroplanes. On passing successfully out of Cranwell, flight cadets are granted permanent commissions subject to medical fitness. They have before them a life career with good prospects of rising by their own efforts to the highest ranks. There is no question of their compulsory retirement on the ground that they have become too old for service as pilots. The work offers great scope both in its military and in its technical aspects to young men of ability, and facilities are given to officers to specialise in engineering, wireless telegraphy, air gunnery, and other subjects. The responsibilities of the Royal Air Force in India, Iraq, Palestine, Egypt, and the Mediterranean provide opportunities

of serving abroad, but a tour of overseas service does not exceed five years.

The total cost to a parent of putting his son into the Royal Air Force through Cranwell is about £250 for the two years' course. For flight cadets who are successful in obtaining prize cadetships or who are eligible for reductions in fees in respect of their father's service in the fighting forces, the total cost of the two years' training is considerably less.

On first commissioning as Pilot Officers at the age of 20 or 21, officers receive cash emoluments amounting at present rates to about £275 a year, in addition to free quarters, light, fuel, rations and part services of a batman, and need no further assistance from their parents. After 18 months' service they become eligible for promotion to the rank of Flying Officer with substantially increased rates of pay, the cash emoluments at present rates being about £344 a year on promotion and about £395 a year after two years' service in the rank.

The Air Ministry considers that the career offered by the Air Force compares very favourably with that offered by any other profession and they desire to emphasise that to take advantage of that career it is quite unnecessary to be possessed of private means. The expenses in Royal Air Force messes are strictly limited, and officers even of the most junior rank, should have no difficulty in living on their pay.

Full details as to entry into Cranwell are contained in Air Publication 121 "Regulations for Admission to the Royal Air Force Cadet College" (price 4d. net) and more general information as to the career offered by the Royal Air Force is provided in an official handbook entitled "The Royal Air Force as a Career" (price 3s.). These publications can be obtained through any bookseller, or direct from H.M. Stationery Office, Kingsway, W.C.2.

Royal Air Force Flying Accident

THE Air Ministry regrets to announce that as the result of an accident at Tilshead, Wiltshire, to a Bristol Fighter of No. 2 Squadron, Manston, on September 10, Flying Officer Reginald Richard Reedman, the pilot of the aircraft, was killed and Major Oliver Birkbeck, 108th (Suffolk & Norfolk Yeomanry) Field Brigade, Royal Artillery (T.A.), was seriously injured.

28th Squadron (R.A.F.) Old Boys' Association

THE 28th Squadron (R.A.F.) Old Boys' Association will be holding its Seventh Re-union on October 2 next. This will take the form of the Annual Supper at the "White Horse," Holborn, assembling at 6 p.m. for 6.30 p.m. Tickets, price 3s. 6d. There are still a number of old comrades of "No. 28" with whom the Association has not yet had the pleasure of

renewing friendships. Any, therefore, who may see this notice are assured that they will receive a very hearty welcome and an enjoyable evening at the Seventh Re-union Supper—which, it might be added, is a homely and quite informal affair. Tickets and further particulars may be obtained from the Hon. Secretary C. T. Hodges, 102, Camden Street, London, N.W.1.

Dominion Premiers to Visit Croydon Aerodrome

THE Air Ministry announces that arrangements are being made, as in 1923, to give an air demonstration at the Air Port of London, Croydon, for the Dominion Prime Ministers and other representatives of the Dominions who will visit this country in October for the Imperial Conference. The display will take place on the afternoon of Saturday, October 23, and both Royal Air Force and civil aircraft will participate.

PERSONALS

The engagement is announced between Flight-Lieutenant J. DENIS BREAKEY, D.F.C., only son of Mr. and Mrs. J. E. Breakey, of Abbeydale Hall, Dore, Sheffield, and META McNIVEN MAIN (Bobbie), youngest daughter of the late Alexander McNiven and of Mrs. J. A. Main, of Langhurst, Chiddingfold, Surrey.

To be Married

The engagement is announced between Flying Officer GODFREY JENNINGS, R.A.F., eldest son of Mr. Fredk. S. Jennings and Mrs. Jennings, of Bedford Park, London, and KATHLEEN, only daughter of Mr. Harold JACOB and Mrs. JACOB, of Stamford Brook, London.

The engagement is announced between Squadron-Leader M. THOMAS, D.F.C., A.F.C., second son of Mr. and Mrs. M. Thomas, of Knighton, Radnorshire, and Miss O. L. (BETTY) PAYNE, younger daughter of the late Frederick Gillies Payne and Mrs. Payne, 55, Manchester Street, W. 1, and granddaughter of the late Sir Salisbury Payne, Bt., Blunham, Beds.

Killed

Flying-Officer WILLIAM OSMUND DU PORT, who was killed on September 1 in a flying accident at Hinaidi, Iraq, was the eldest son of Lt.-Col. O. C. Du Port, D.S.O., late R.A. He was aged 22.

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Fatal Parachute Jump

A TRAGIC parachute accident occurred at Leicester on September 9, when Mrs. D. Cain, aged 25, of Leicester, was killed when attempting a descent by parachute from an aeroplane. The pilot of the latter, Capt. A. F. Muir, of the Surrey Flying Services, had been giving exhibition and passenger flights in the town, and several parachute descents had also previously been accomplished. Invitations were made for members of the public to make descents, and one woman had already made a successful descent. On Thursday last Mrs. Cain volunteered and ascended in the machine, Capt. Muir having himself fitted on the harness. When at an altitude of about 1,000 ft. the signal was given for Mrs. Cain to jump, and when she did so she dived straight to the ground without the parachute—the cable attaching the latter to the harness having in some way become detached. Mrs. Cain struck the ground with considerable force, and was dead when picked up, but it is probable that death took place before she hit the ground; there was no cable attached to the harness, the cable being found intact and still attached to the parachute in the machine. The inquest was opened on September 10 and was adjourned pending an inquiry into the failure of the parachute gear.

Arising out of this tragedy the Air Ministry issued a notice to airmen, on September 14, stating that parachute descents from civil aircraft are prohibited unless permitted by directions issued by the Secretary of State. It is added that formal application for the necessary permission, giving full details of the proposed descent, should be addressed to the Secretary (A and L), Air Ministry, Gwydyr House, Whitehall, London, S.W. 1, at least 14 days prior to the date on which it is desired to make the parachute descent.

Callizo's Altitude Record

THE F.A.I. has officially confirmed the altitude record of 14,442 m. (47,370 ft.) attained by the French pilot Callizo on August 30 last.

French Non-Stop Flights

LIEUT. CHALLE and Capt. Weiser, who recently made an unsuccessful attempt to beat the world's record for long-distance non-stop flights, have at last succeeded. Leaving Le Bourget, in a Breguet XIX A2 biplane (500 h.p. Farman) on August 31, they flew to Bandar Abbas, on the Persian Gulf, without a stop. The total distance flown being about 3,250 miles, this easily beats Girier's Paris-Omsk record of 2,947 miles.

On September 10-11 Lieuts. Girardot and Cornillon accomplished a fine non-stop night-flight in a standard Breguet XIX A2 (450 h.p. Lorraine-Dietrich). They left Le Bourget at 7.35 p.m. and landed at Rabat (Morocco) at 6 a.m. the following morning. During the flight they were in wireless communication with the stations of Viry, Bordeaux, Toulouse, Algiers, and Casablanca.

Capt. Rignot and Adj. Rossy, left Le Bourget at 6 a.m. on September 12, and made a non-stop flight to Athens, where they arrived at 4.30 p.m. The total distance of 2,100 kms. (1,300 miles) was covered at an average speed of 200 k.p.h. (about 124 m.p.h.).

IMPORTS AND EXPORTS, 1925-1926

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910). For 1910 and 1911 figures see "FLIGHT" for January 25, 1912; for 1912 and 1913. see "FLIGHT" for January 17, 1914; for 1914, see "FLIGHT" for January 15, 1915; for 1915, see "FLIGHT" for January 13, 1916; for 1916, see "FLIGHT" for January 11, 1917; for 1917, see "FLIGHT" for January 24, 1918; for 1918, see "FLIGHT" for January 16, 1919; for 1919, see "FLIGHT" for January 22, 1920; for 1920, see "FLIGHT" for January 13, 1921; for 1921, see "FLIGHT" for January 19, 1922; for 1922 see "FLIGHT" for January 18, 1923; for 1923, see "FLIGHT" for January 17, 1924; for 1924, see "FLIGHT" for January 22, 1925; for 1925, see "FLIGHT" for January 21, 1926.

	Imports.		Exports.		Re-Exports.	
	1925.	1926.	1925.	1926.	1925.	1926.
Jan. . .	3,546	494	83,728	130,049	291	—
Feb. . .	985	2,039	85,639	40,416	20	6,341
Mar. . .	—	1,001	56,881	92,840	9,355	9,758
Apl. . .	321	536	78,041	160,832	6,732	5,051
May . .	560	342	74,844	118,539	15,278	—
June . .	190	24,866	71,009	6,111	667	150
July . .	184	16,033	159,262	39,047	870	—
Aug. . .	469	21,401	113,054	146,129	—	1,035
	6,255	66,762	722,453	793,963	33,213	22,335

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PUBLICATIONS RECEIVED

Technical Notes of the U.S. National Advisory Committee for Aeronautics: No. 235.—Propeller Design: Practical Application of the Blade Element Theory—I. By F. E. Weick. May, 1926. No. 236.—Propeller Design: Extension of Test Data on a Family of Model Propellers by Means of the Modified Blade Element Theory—II. By F. E. Weick. May, 1926. No. 237.—Propeller Design: A Simple System Based on Model Propeller Test Data—III. By F. E. Weick. May, 1926. No. 238.—Propeller Design: A Simple Method for Determining the Strength of Propellers—IV. By F. E. Weick. June, 1926. No. 239.—Steam Power Plants in Aircraft. By E. E. Wilson. June, 1926. No. 240.—The N.A.C.A. CYH Airfoil Section. By G. J. Higgins. June, 1926. No. 241.—Tests of Several Bearing Materials Lubricated by Gasoline. By W. F. Joachim and H. W. Case. July, 1926. The National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

Air Service Time-Table and Tariff. Air Union, 32, Haymarket, London, S.W. 1.

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AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1925

Published September 16, 1926

- 19,983. F. H. ROYCE and A. G. ELLIOTT. Means for support of aero engines. (257,087.)
 21,402. LOW ENGINEERING CO., LTD., H. S. O'BRIEN and A. M. LOW. I.c. engines. (257,099.)
 23,719. J. SUZUKI. Rotary engines. (257,110.)

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